

**CLAIM AMENDMENTS**

This listing of claims will replace all prior versions and listings of claims.

1. (Currently Amended) A sound reproduction system comprising:
- a digital audio signal input ~~(1)~~;
  - a digital audio signal processor ~~(2, DSP)~~; and
  - a digital audio signal output ~~(3)~~,
  - a sensor for measuring background noise level, and
  - an element having as an input the measured noise level and as an output a  
HP cut-off frequency,
  - wherein the HP cut-off frequency increases as the background noise level  
increases, and a LP cut-off frequency decreases as the HP cut-off frequency  
increases,
  - wherein the digital audio signal processor ~~(2, DSP)~~ comprises:
    - a high pass (HP) filter ~~(21)~~ with a ~~high pass~~ HP frequency (f),
    - an amplifier ~~(22)~~ for a signal filtered by the HP filter, and
    - a low pass (LP) filter ~~(23)~~ with a ~~low pass~~ LP frequency (f) ~~for filtering~~  
that filters the signal after amplification by the amplifier ~~(22)~~ and for  
providing an output signal, and ~~the digital processor comprises~~
    - an establisher ~~(24, 25)~~ for establishing that establishes the high pass  
HP frequency or the low pass LP frequency, and

19 a matcher ~~(26) for matching that matches~~ the high-pass HP frequency  
20 and low-pass ~~the LP~~ frequency of the high-pass HP filter and low-pass ~~the LP~~  
21 filter respectively to each other.

1 2. (Canceled).

1 3. (Currently Amended) A sound reproduction system as claimed in ~~claim 2~~  
2 claim 1, further comprising:

3 a single LP filter with a variable cut-off frequency.

1 4. (Currently Amended) A sound reproduction system as claimed in ~~claim 2~~  
2 claim 1, further comprising:

3 a set of LP filters with a different LP cut-off frequency,

4 wherein ~~and~~ the matcher is arranged to send the signal after amplification to  
5 one of the set of LP filters, in dependence on the HP cut-off frequency.

1 5. (Currently Amended) A sound reproduction system as claimed in claim 1,  
2 wherein the establisher is arranged for establishing the cut-off frequency of  
3 the high-pass HP filter in dependence on the average amplification in the  
4 amplification stage.

1 6. (Currently Amended) A sound reproduction system as claimed in claim 1,  
2 wherein the establisher is arranged to set the cut-off frequency  $f'$  of the LP  
3 filter at  $f_s/2$ , wherein  $f_s$  is ~~the~~ a sample frequency and the matcher matches the ~~high~~  
4 ~~pass-HP~~ frequency  $f$  to the ~~low-pass-LP~~ frequency  $f'$ .

1 7. (Currently Amended) A sound reproduction system as claimed in claim 6,  
2 further comprising:  
3 a single HP filter with a variable cut-off frequency.

1 8. (Currently Amended) A sound reproduction system as claimed in claim 6,  
2 further comprising:  
3 a set of HP filters with a different HP cut-off frequency and wherein the  
4 matcher is arranged to send the signal before amplification to one of the set of HP  
5 filters, in dependence on the LP cut-off frequency.

1 9. (Original) A sound reproduction system as claimed in claim 1, wherein the  
2 HP cut-off frequency ( $f$ ) is a frequency between 300 Hz and 2 kHz.

1 10. (Original) A sound reproduction system as claimed in claim 1, wherein the LP  
2 cut-off frequency lies above 2 kHz and  $f_s/2$ , where  $f_s$  is ~~the~~ a sample frequency.

1 11. (Currently Amended) ~~Digital~~ A digital audio signal processor comprising:  
2 a high pass (HP) filter ~~(21)~~ with a high-pass-HP frequency ( $f_h$ );  
3 an amplifier ~~(22)~~ for a signal filtered by the HP filter; and  
4 a low pass (LP) filter ~~(23)~~ with a low-pass-LP frequency ( $f_l$ ) for filtering that  
5 filters the signal after amplification by the amplifier ~~(22)~~ and for providing provides  
6 an output signal, and the digital processor comprises  
7 an establisher ~~(24, 25)~~ for establishing that establishes the high-pass-HP  
8 frequency or the low-pass-LP frequency, and  
9 a matcher ~~(26)~~ for matching that matches the high-pass-HP frequency and  
10 the LP frequency respectively to each other,  
11 a sensor for measuring background noise level, and  
12 an element having as an input the measured noise level and, as an output, a  
13 HP cut-off frequency,  
14 wherein the HP cut-off frequency increases as the background noise level  
15 increases, and a LP cut-off frequency decreases as the HP cut-off frequency  
16 increases.

1 12. (Currently Amended) A method for processing digital sound signals,  
2 ~~in which method the wherein~~ frequency components below a HP cut-off frequency  $f_h$   
3 ~~is~~ are removed prior to amplification, and, after amplification, ~~the~~ frequency  
4 ~~component~~ components above a LP cut-off frequency are removed,

5        wherein the values of the HP cut-off frequency and the LP cut-off frequency f  
6        are matched, and

7        wherein a noise level (N) is measured and the HP cut-off frequency f is  
8        determined in dependence on the measured noise level.

1        13.    (Original) A method as claimed in claim 12,

2        wherein the HP cut-off frequency lies between 300 and 2 kHz.

1        14-16. (Canceled).